

REMARKS

Amendment summary

Claims 12 and 13 are newly added. Support for these claims may be found, e.g., at least at page 9, lines 28-30 of the present specification. In this respect, Applicant notes that calcium carbonate is a filler.

No new matter is added by this Amendment, and Applicant respectfully submits that entry of this Amendment is proper.

Status of the claims

Claims 1, 3-8, and 10 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Toda et al. (JP 05-302026) in view of Watabe et al. (JP 05-059267) (hereinafter “Toda” and “Watabe,” respectively). In addition, claims 9 and 11 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Toda and Watanabe in view of Hirose et al. (U.S. Patent No. 4,593,068) (hereinafter “Hirose”).

Response to rejections based on Toda and Watabe

Applicant respectfully traverses each of the above rejections (all are based on Toda and Watabe) on the basis that Toda and Watabe both fail to disclose or suggest the presently claimed pressure sensitive adhesive product.

Applicant submits herewith technical documentation which illustrates the differences between a pressure sensitive adhesive and non-pressure sensitive adhesives, such as the sealing materials disclosed in Toda. Turning first to the document “Chemistry and Application of Adhesive and Pressure Sensitive Adhesive,” this document explains that pressure sensitive

adhesives and (non-pressure sensitive) adhesives are distinct. Pressure sensitive adhesive products are typically produced by, for example, curing pressure sensitive adhesive compositions onto supports. The cured compositions (pressure sensitive adhesives) have a strong tackiness immediately after the curing. Pressure sensitive adhesives are gel-like solids, and exhibit peel resistance while maintaining their forms as gel-like solids. Pressure sensitive adhesive products include, for example, packing tapes, and pressure sensitive adhesive products can repeatedly stick to and peel from other surfaces.

Conversely, adhesives (which include sealing materials) have weak tackiness and are present in liquid form (as explained on page 101, Fig. 1.1 of “Chemistry and Application...”). The liquid compositions cure, thereby creating a solid having large binding power (peel resistance) at the interface of the cured product and the adhered-to object. Compositions for sealing materials are supplied in liquid form (i.e., the state prior to curing), and when they are cured, they exhibit peel resistance at the interface, but the surfaces of the cured products do not have tackiness.

Accordingly, it is respectfully submitted that it is well-known that adhesives and pressure sensitive adhesives possess distinct properties. Even if components of the two were similar, they would produce distinct cured products, as one would have tack (and be classified as pressure sensitive) and the other would not.

With that background, Applicant respectfully submits that the presently claimed invention is not rendered obvious by the cited references because Toda and Watabe relate to non-pressure sensitive adhesives. The composition described in Toda is a sealing material formed by using a polymer having a main chain essentially consisting of a polyether and terminated with a cross-linkable hydrolysable silyl group as a base resin (see Abstract). Watabe is directed to a

room temperature curable composition which is curable in the presence of moisture (*see* Watabe at ¶ [0001]). The composition in Watabe is also a sealing agent (*see* Watabe at ¶ [0048]). Thus, the composition in Toda and Watabe are both sealing agents, which are distinct from pressure sensitive adhesives.

To illustrate this argument, Applicant submits herewith a Declaration Under 37 C.F.R. § 1.132 by Mr. Toyohisa Fujimoto, in which he reproduces Examples from Toda and Watabe and measures their properties, thus showing that the reproduced adhesives are not pressure sensitive. In Experiment A) of Mr. Fujimoto's Declaration, he reports the reproduction of the composition of Example 2 in Toda. As Mr. Fujimoto reports, the composition provided a cured product having poor adhesive strength (tack strength). In Experiment B), Mr. Fujimoto reports the reproduction of a composition corresponding to the composition in Example 5 of Watabe. Similar to the reproduced sample of Toda, the reproduced composition from Watabe also provided a cured product having poor adhesive strength (tack strength).

Additionally, the composition in Experiment C) in Mr. Fujimoto's Declaration contains polymers (A) and (B) of the present invention but not a tackifier resin (C). Thus, it corresponds to the compositions of Watabe and illustrates that the compositions disclosed in Watabe do not provide cured products having a high tack strength.

Accordingly, Applicant respectfully submits that the results illustrated in Mr. Fujimoto's Declaration indicate that neither the compositions disclosed in Toda nor the compositions disclosed in Watabe result in pressure sensitive adhesive products having high tack strength. Applicant therefore respectfully submits that the cited references fail to disclose or suggest the presently recited pressure sensitive adhesive.

Applicant also respectfully submits that the presently claimed invention exhibits unexpected properties because the combination of polymer (A), polymer (B), and tackifier resin (C) generates surprisingly high tack strength. The present specification illustrates this unexpectedly superior property. Comparative Examples 1 and 2 (corresponding to Toda) do not contain polymer (B). This is relevant because even in the Comparative Example where there is a large amount of tackifier resin added (100 weight parts), the adhesive strength (tack strength) is only 10.2 N/25mm. The Comparative Examples therefore illustrate that even a large amount of tackifier resin does not improve the adhesive strength of a sealing material. This unexpected property is neither disclosed nor suggested by the cited art, and Applicant respectfully requests that the rejection be withdrawn on this ground, as well.

Applicant additionally submits that component (B) improves the tack strength, which is not disclosed or suggested by the cited art. Toda, for example, discloses various plasticizers, such as tributyl phosphate and dioctyl phthalate. However, these plasticizers usually serve to decrease tack strength. In fact, as shown in Experiment A) in Mr. Fujimoto's attached Declaration, the composition of Example 2 of Toda, which contains dioctyl phthalate, provides for a cured product having a very low adhesive strength (tack strength). Accordingly, a person having ordinary skill in the art would not expect that the presence of a plasticizer would increase the tack strength of a cured product. Even if Watabe was understood to disclose that its low molecular weight compound (II) functions as a plasticizer, there would be no reason to predict that the compound (II) would increase tack strength when added as a plasticizer to the composition of Toda.

Also relevant to component (B) in the pressure sensitive adhesive composition of the present claims, the number of hydrolyzable silyl groups per molecule in component (B) is at least

0.3. If it is smaller than 0.3, then the compound functions as a plasticizer, leading to a failure to obtain good pressure sensitive adhesive characteristics (see page 8, lines 26 to 29 of the present specification). This is supported by Comparative Example 1 of the present specification, in which the composition contains Actocol P-23 (polypropylene glycol), having no hydrolyzable silyl groups. The resulting tack strength of the cured product is as low as 7.6 N/25mm.

Conversely, the number of hydrolyzable silyl groups in component (B) is at most 1.3. When it is larger than 1.3, the flexibility of the pressure sensitive adhesive composition may be impaired, possibly leading to failure to obtain good pressure sensitive adhesive characteristics (see page 8, lines 29 to 33 of the present specification). This is further supported by Experiment 6 in the Declaration of April 6, 2010, which contains polymer (P-1) (Mn: 4000, 1.5 Si groups per molecule). The tack strength of the cured product is as low as 1.3 N/25mm. These properties are not disclosed or suggested by the cited art.

Additionally, with respect to claims 12 and 13, Applicant respectfully submit that Toda and Watabe fail to disclose or suggest the subject matter of these claims. Toda and Watabe are directed toward sealing materials. Fillers such as calcium carbonate are included in the compositions in order to provide strength to the cured products. However, claims 12 and 13 recite that there is no calcium carbonate or other fillers present. In fact, the pressure sensitive adhesive composition of the presently claimed invention does not need fillers. If fillers are included in the composition, the percentage of the components (B) and (C) decreases, thus decreasing tack strength.

Hirose fails to remedy the deficiencies of Toda and Watabe, above.

In view of the above, Applicant respectfully submits that the presently claimed invention is not rendered obvious by the cited references, and respectfully requests the reconsideration and withdrawal of the rejections based on Toda and Watabe.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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